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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,877	06/02/2004	Kevin P. Pearce		3876

35585 7590 11/30/2005

KEVIN P. PEARCE  
136 SHENKLEVIEW DRIVE  
JOHNSTOWN, PA 15905

EXAMINER
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RODRIGUEZ, WILLIAM H

ART UNIT	PAPER NUMBER
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3746

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/709,877

Applicant(s)

PEARCE, KEVIN P.

Examiner

William H. Rodriguez

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 June 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

This office action is in response to the amendment and remarks filed 10/13/05. Since the examiner has applied new grounds of rejection, this office action is being made non-final to afford the applicant the opportunity to respond to the new grounds of rejection.

#### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, “the turbine, combustion chamber, at least four fuel injector **arranged in independent groups**”, at least one operating sensor, a programmable electronic control unit, a means for directing said fuel injector control signals to said fuel injector” in claims 1-14 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

\*Figures 5a and 5b show 4 or 6 independent fuel injectors distributed around the circumference of the combustion chamber (typical arrangement in the art). However, these fuel injector are not grouped\* in any way.

\*According to the Merriam Webster's Collegiate Dictionary, group means two or more elements assembled together or having a unifying relationship. In figures 5a and 5b, two or more fuel injectors are not assembled together or having a unifying relationship. The fuel injectors are independently assembled around the circumference of the combustion chamber, they are not grouped in any way.

As an example of what the examiner is requesting regarding the drawings, refer to the figures of US 5,205,116.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

**Note:** The drawing corrections (Figures 1, 2a and 2b) filed on 10/13/05 are approved by the examiner. However, the other Figures are objected to because of the problems mentioned above.

***Specification/Abstract***

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

**The abstract should be** in narrative form and generally limited to a single paragraph on a separate sheet **within the range of 50 to 150 words**. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. **The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided.** The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it contains more than 150 words.

Correction is required. See MPEP § 608.01(b).

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 6, 9 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "said combustion zone" in line 2. There is insufficient antecedent basis for this limitation in the claim. Appropriate correction is required.

Claim 6 recites the limitation "said turbine engine's shaft" in line 2. There is insufficient antecedent basis for this limitation in the claim. Appropriate correction is required.

Claim 9 recites the limitation "said programmable electronic control unit" in line 2. There is insufficient antecedent basis for this limitation in the claim. Appropriate correction is required.

Claim 12 recites the limitation "said combustion zone" in line 2. There is insufficient antecedent basis for this limitation in the claim. Appropriate correction is required.

Claim 12 recites the limitation "the shaft" in line 2. There is insufficient antecedent basis for this limitation in the claim. Appropriate correction is required.

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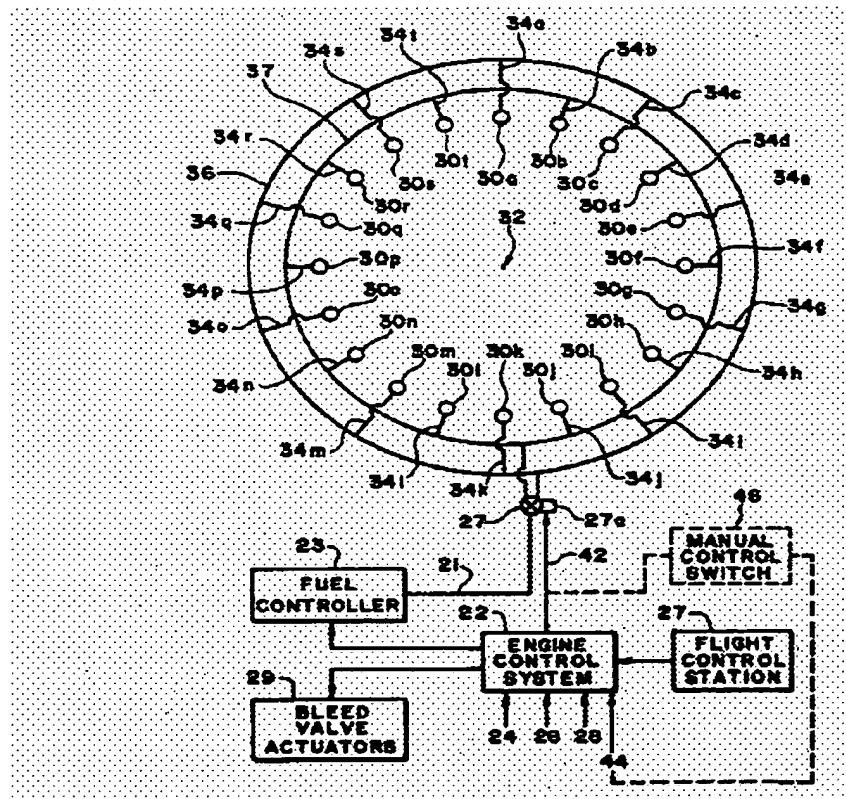
***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Ng (US 5,205,116).



Ng teaches and apparatus and method for controlling the injection of fuel in a turbine engine having a combustion chamber, said apparatus comprising: at least four fuel injector, a plurality of sensors sensing operational parameters of the turbine engine (24, 26, 28), a programmable electronic control unit for receiving and comparing the value of said sensor

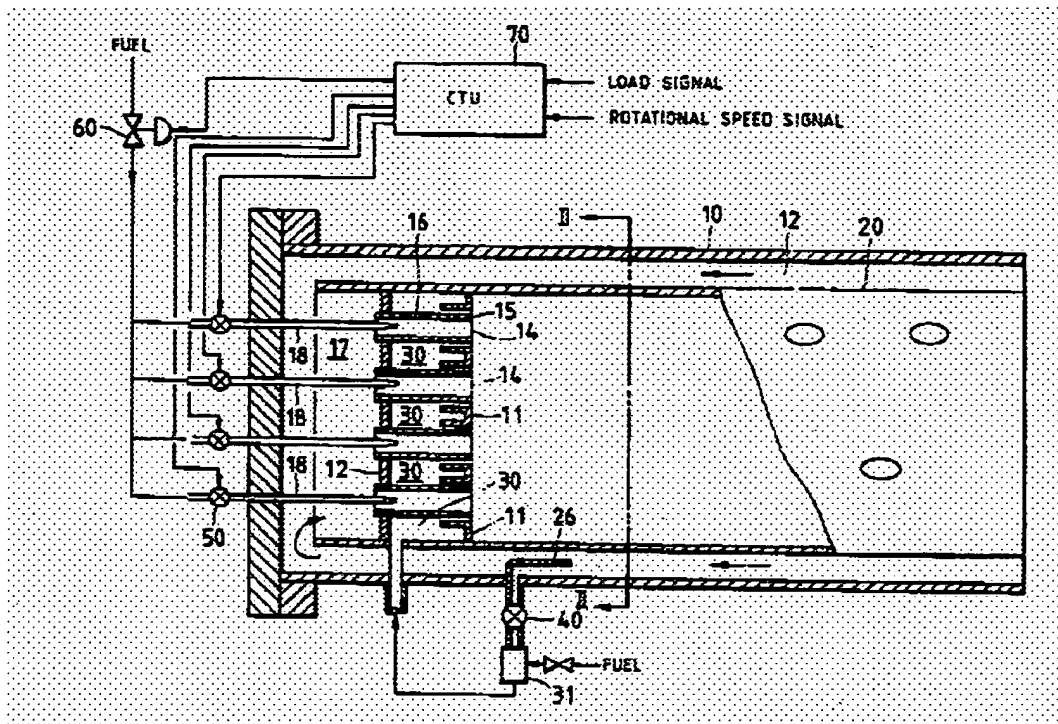
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signals to the value of a desired signal, and for generating fuel injector control signals to said plurality of fuel injectors, and means for directing the fuel injectors control signals to said plurality of fuel injectors. See particularly **Figures 1, 3**.

As clearly shown in Figure 3 of Ng, the programmable electronic control unit 22 receives sensor signals 24, 26, 28 from sensors detecting operational parameters (i.e., load, speed, temperature, etc, see cl.3 ll.48-54) of the turbine engine. Then, these sensor signals received from the sensors are compared to their desired values. Based on the difference the controller sends a signal to the fuel controller 23 to adjust the fuel injection through the fuel injectors accordingly. Ng's fuel injectors are arranged as the ones disclosed and claimed in the invention. See particularly **Figures 1, 3**.

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7. Claims 1-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Iwai et al. (US 5,339,635).



Iwai teaches an apparatus and method for controlling the injection of fuel in a turbine engine having a combustion chamber, said apparatus comprising: at least four fuel injectors, a plurality of sensors sensing operational parameters of the turbine engine (i.e., load, speed, etc., see cl.3 ll.61-64), a programmable electronic control unit 70 for receiving and comparing the value of said sensor signals to the value of a desired signal, and for generating fuel injector control signals to said plurality of fuel injectors, and means for directing the fuel injectors control signals to said plurality of fuel injectors. See particularly **Figures 1, 2**.

As clearly shown in Figure 1 of Iwai, the programmable electronic control unit 70 receives sensor signals (load, speed, etc) from sensors detecting operational parameters of the turbine engine. Then, these sensor signals received from the sensors are compared to their



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desired values. Based on the difference the controller sends a signal to the valves 50 and 60 to adjust the fuel injection through the fuel injectors accordingly. Iwai's fuel injectors are arranged as the ones disclosed and claimed in the invention. See particularly **Figures 1, 2**.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over any one of the following US references:

**US 3,688,495** see particularly **Figure 1**

**US 5,339,620** see particularly **Figure 1**

**US 6,145,297** see particularly **Figure 1**

**US 6,761,032** see particularly **Figure 1** and cl 3 ll.51-64

**US 6,877,307** see particularly **Figure 1**

**US 2002/0178733** see particularly **Figure 1**

**US 2002/0194851** see particularly **Figure 1**

**US 6,820,429** see particularly **Figure 1**

**US 5,349,811** see particularly **Figure 4b and 5**

Each one of the references listed above teaches the invention as disclosed and as claimed, particularly and apparatus and method for controlling the injection of fuel in a turbine engine

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having a combustion chamber, said apparatus comprising: a plurality of fuel injectors, a plurality of sensors sensing operational parameters of the turbine engine, a programmable electronic control unit for receiving and comparing the value of said sensor signals to the value of a desired signal, and for generating fuel injector control signals to said plurality of fuel injectors, and means for directing the fuel injectors control signals to said plurality of fuel injectors. The above references do not schematically show at least 4 fuel injectors, but only one or two or three. However, as it is well known in the art, a typical turbine engine comprises a plurality of fuel injectors, at least four fuel injectors. The drawings only show two or three for illustration purposes only but it is obvious if not inherent that there are more fuel injectors (not schematically shown), at least four. Therefore, one of ordinary skill in the art by examining the above references would have concluded that the engine comprises at least four fuel injectors.

### ***Response to Arguments***

10. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

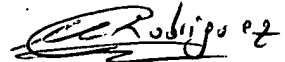
### ***Contact information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Rodriguez whose telephone number is 571-272-4831. The examiner can normally be reached on Monday-Friday 7:30 am to 5:00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy S. Thorpe can be reached on 571-272-4444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 11/24/05  
William H. Rodriguez  
Primary Examiner  
Art Unit 3746